

# KENTUCKY FORESTS



*Western Unit*



# FOREWORD

More than a decade has elapsed since the last comprehensive inventory of Kentucky's woodlands. Timber cutting, tree growth, and shifts in land use since then have led to several important changes in the timber resource. The demand for forest products has also changed. Recent emphasis on rural area development has made the necessity for fresh statistics even more pressing. Local communities and forest-based industries are finding a greater need for up-to-date data as they plan for future economic development. So, there is an urgent need for new information.

To meet these needs, the Division of Forestry of the Kentucky Department of Natural Resources and the U.S. Forest Service planned and conducted a new inventory of Kentucky forests. The field work was completed in 1964.

The McSweeney-McNary Forest Research Act of 1928 authorizes the Forest Service to complete a statewide forest inventory of Kentucky at approximate 10-year intervals. This is part of the nationwide program of maintaining a current account of our timber resources. The State of Kentucky appropriated \$120,000 for the current survey. This contribution, supplementing the Federal funds available for a regular survey, made it possible to intensify the inventory. As a result, we can provide the kind of detailed information needed for making long-range plans to meet future demands and in addition help local communities and forest-based industries make more efficient use of the forest resource.

Clarence D. Chase, Leader of the Survey Project at the Lake States Forest Experiment Station, directed the inventory. Field survey units of the Kentucky Division of Forestry and the Lake States Station collected the basic inventory data. The Lake States Station computed and tabulated the final statistics and the Central States Forest Experiment Station analyzed and reported the results.

Other organizations made important contributions to the new inventory. Personnel of the Eastern Region of the U.S. Forest Service inventoried and provided statistics for the Cumberland National Forest. The Northeastern Forest Experiment Station assisted with the computation of National Forest data. The Tennessee Valley Authority provided men and equipment to assist in surveying areas of their interest. The Soil Conservation Service and the Agricultural Stabilization and Conservation Service provided the field crews with office space and up-to-date aerial photographs. The Kentucky Department of Highways took and provided aerial photographs for parts of eastern Kentucky where no recent photographs were available. The University of Kentucky and Kentucky Department of Commerce took an active part in planning and gave valuable assistance with problems that evolved during the course of the inventory. Our thanks go to all these organizations and others who contributed.

For sampling and reporting purposes, the State was divided into seven survey units (frontispiece). This report covers the Western Unit. Additional information regarding the survey can be obtained from either the Division of Forestry, Kentucky Department of Natural Resources, or the Central States Forest Experiment Station.

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Archives

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*Western Unit*

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Prepared in cooperation with

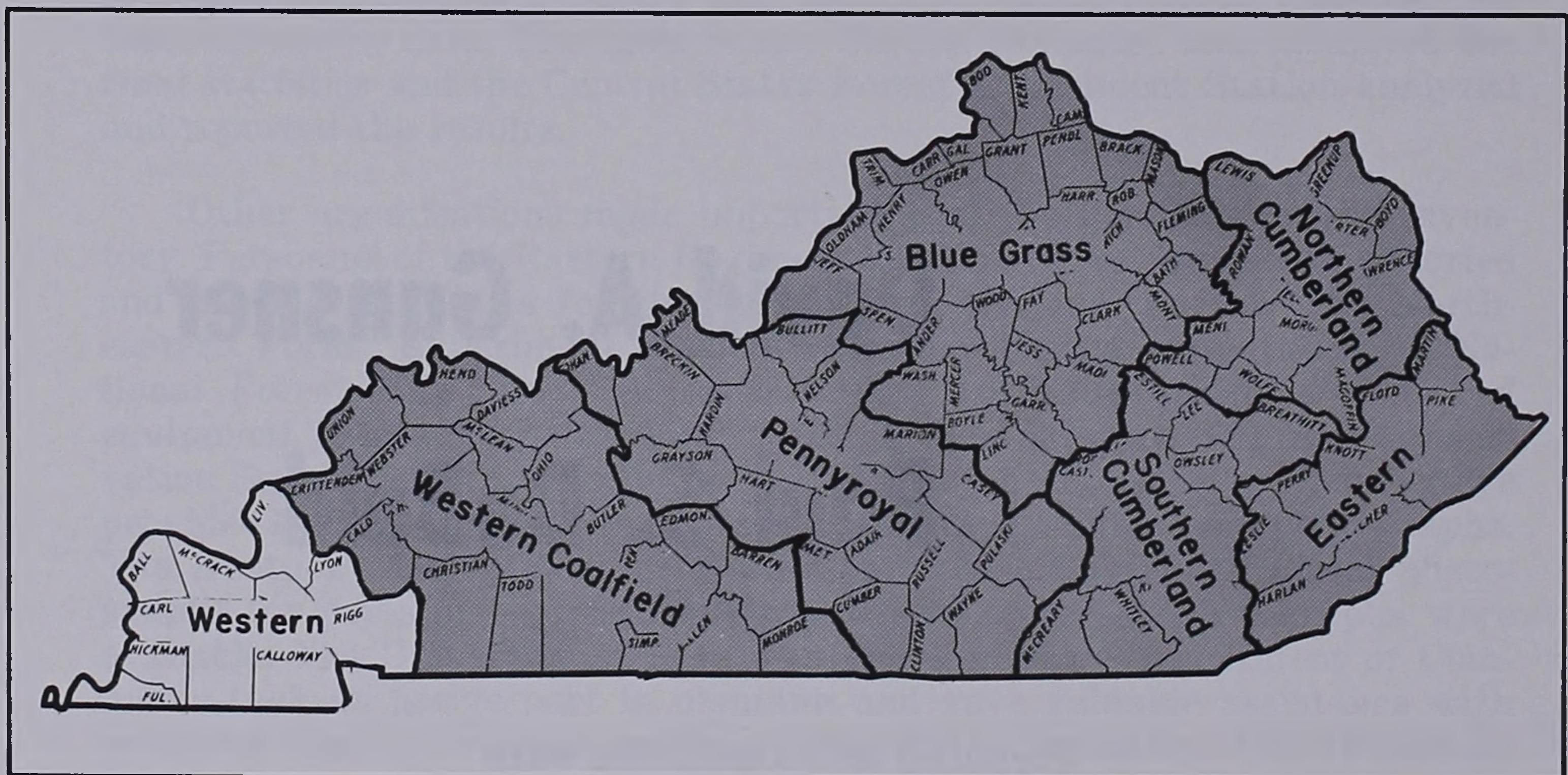
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*Location of the Western Unit in Kentucky.*



## THE TIMBER RESOURCE HAS CHANGED

The Western Unit of Kentucky is an 11-county area in the extreme western part of the State. This is primarily an agricultural region and only 723 thousand acres or one-third of the land area is forest. Trigg is the only county more than 50 percent forested (fig. 1).



*FIGURE 1. — Most of the region's timber is in scattered tracts of farm woodland.*

Forest acreage in the region as a whole has declined less than 1 percent since the last survey in 1949. Forest land increased in five counties and decreased in the other six. In general, decreases occurred in the more heavily forested eastern counties while increases took place in the sparsely forested counties to the west (fig. 2).

Hardwoods are the predominant species component on virtually all of the forest land in the region. Two-thirds of the commercial forest is in the oak-hickory and central mixed hardwood types. In the western-most counties where bottomland species occur more frequently, a high proportion of the woodland is in the elm-ash-cottonwood and oak-gum-cypress types.

Most of the forest is in farm and other private tracts. Only about 12 percent is publicly owned forest; practically all of this in Federal holdings.



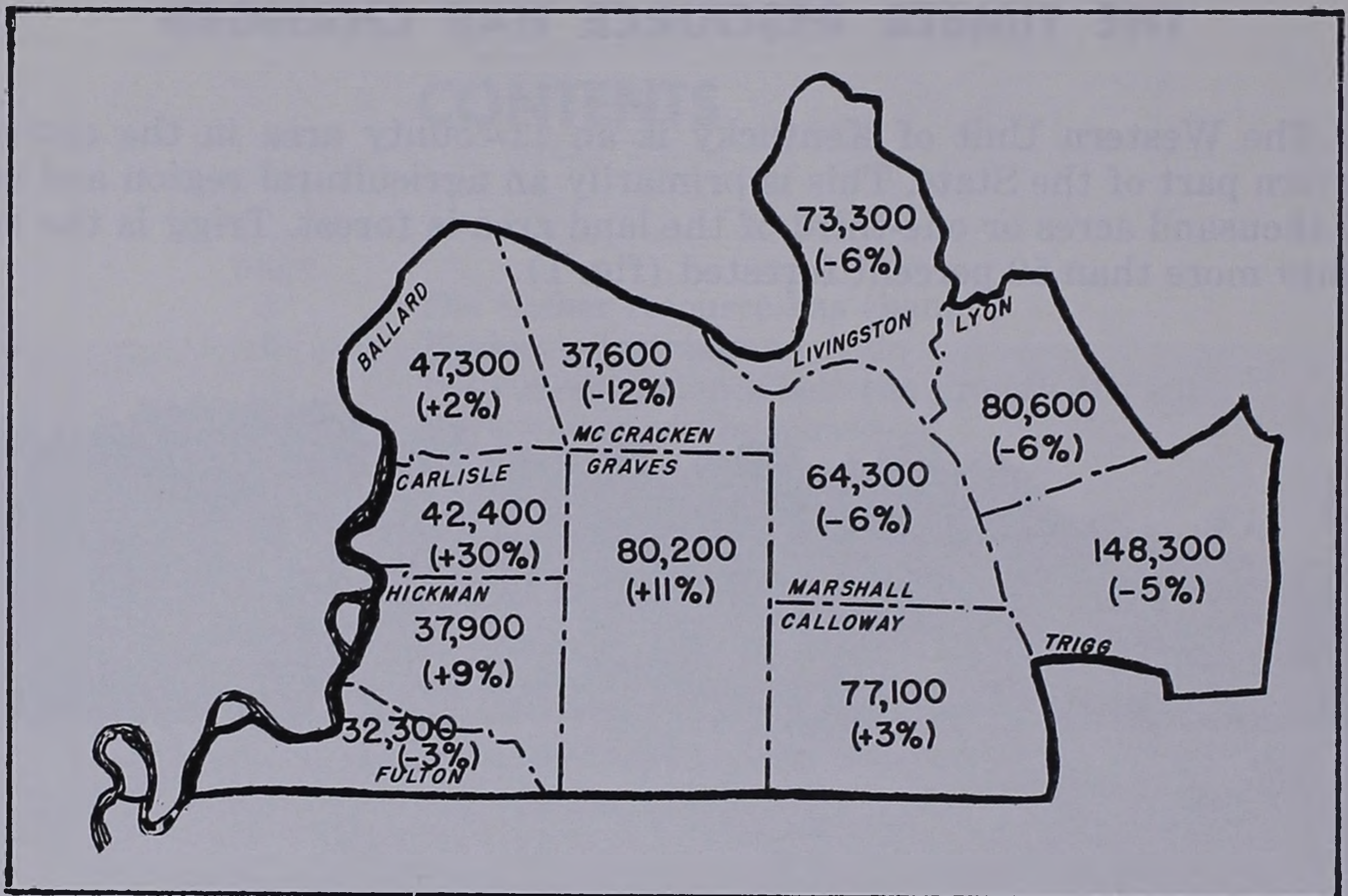


FIGURE 2. — Acreage of commercial forest land by county, 1963, and percentage change since 1949.

While there was little change in the acreage of productive timberland between inventories, timber volume increased substantially. Growing-stock volume increased more than 20 percent from 523 to 641 million cubic feet.<sup>1</sup>

Most of the increase was in trees of sawtimber size. Sawtimber volume increased more than 50 percent and now totals 2.6 billion board feet (fig. 3).

This is one of the few areas in the central hardwoods region of the United States where there has been a substantial excess of growth over drain in the large diameter classes during recent years. In 1949, 46 percent of the growing-stock volume in the region was in trees 13.0 inches d.b.h. and larger. Now more than half the volume is in these sizes (fig. 4). In 1963, volume per acre in the region averaged about 890 cubic feet of growing stock and 3,600 board feet of sawtimber—higher than in any other unit of the State.

There were large increases in the volumes of oak, cottonwood, and most of the other important commercial timber species (figs. 5 and 6). As in other regions of Kentucky, most of the volume is in hard-textured hardwood species with the oaks alone comprising about half the volume. But a

<sup>1</sup> The 1949 estimates of growing-stock volume are not directly comparable with those of 1963 because they did not include merchantable material in the upper-stem portion of hardwood sawtimber-size trees. The 1949 data had to be adjusted to permit comparisons.





FIGURE 3. — The volume of big timber has increased sharply since 1949.

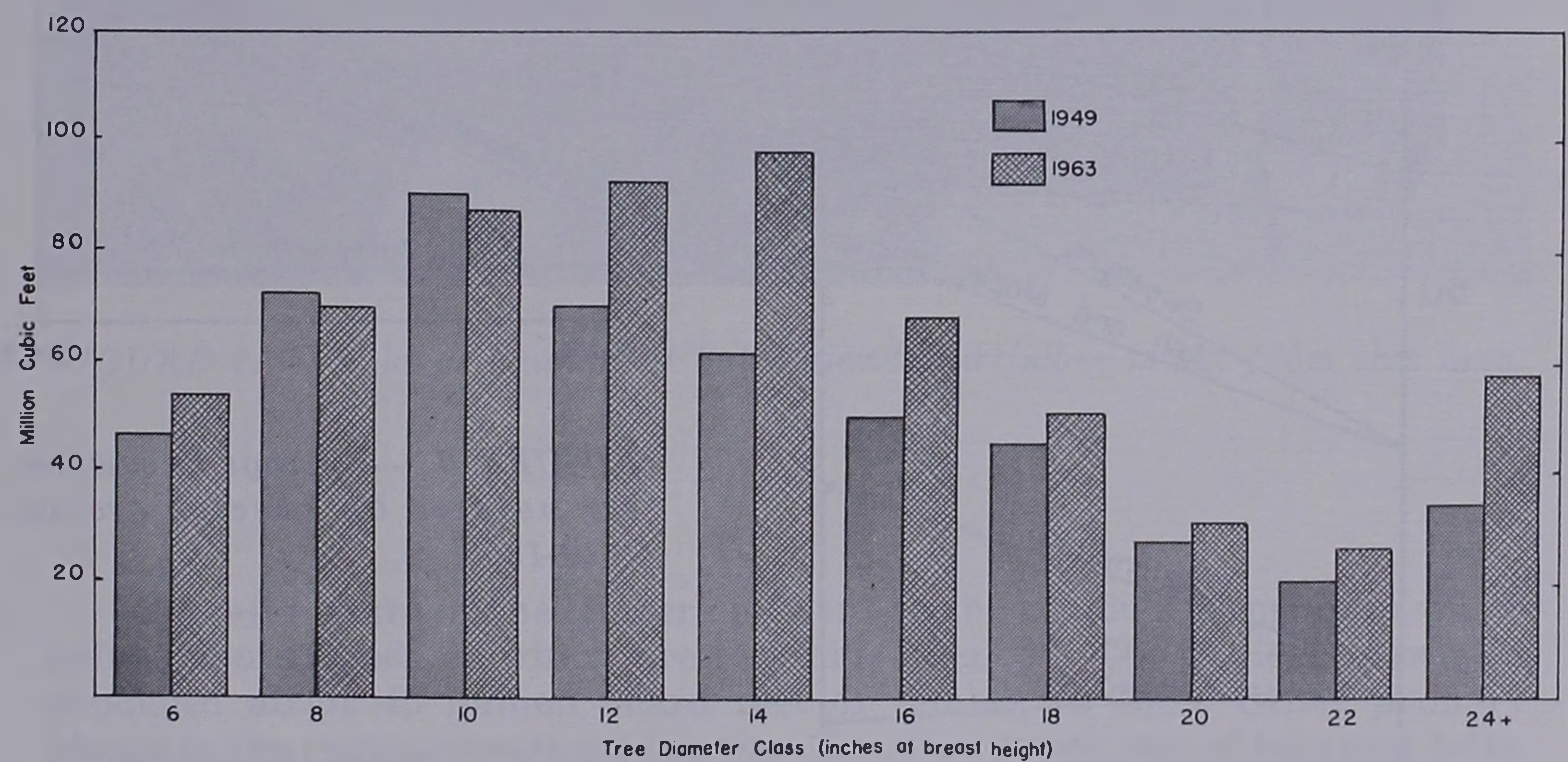


FIGURE 4. — Change in volume of growing stock by diameter class, 1949-1963.



relatively high proportion of the inventory is in soft hardwoods such as cottonwood, sweetgum, and soft maple. About two-thirds of Kentucky's cottonwood volume and more than two-fifths of the sweetgum volume are found here.

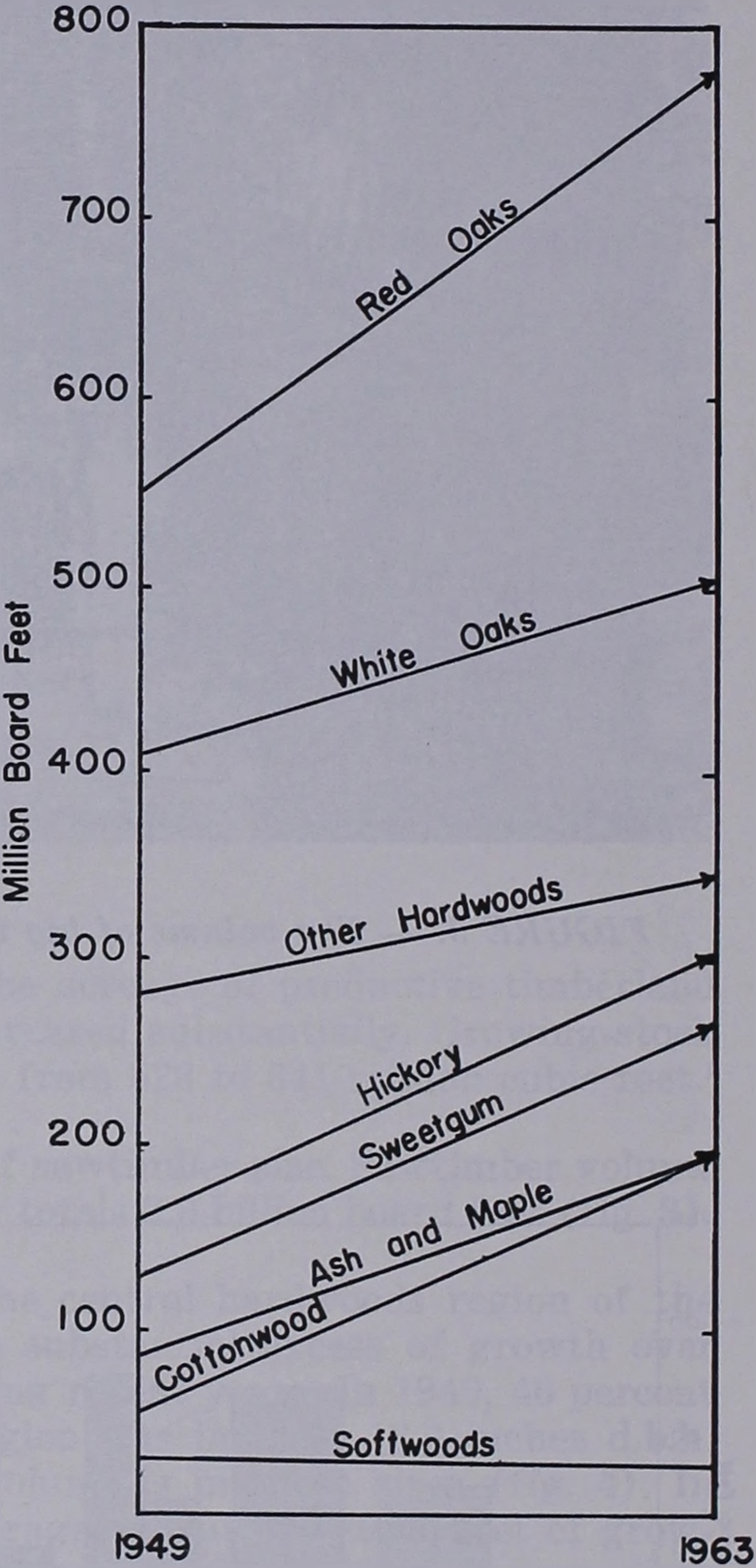
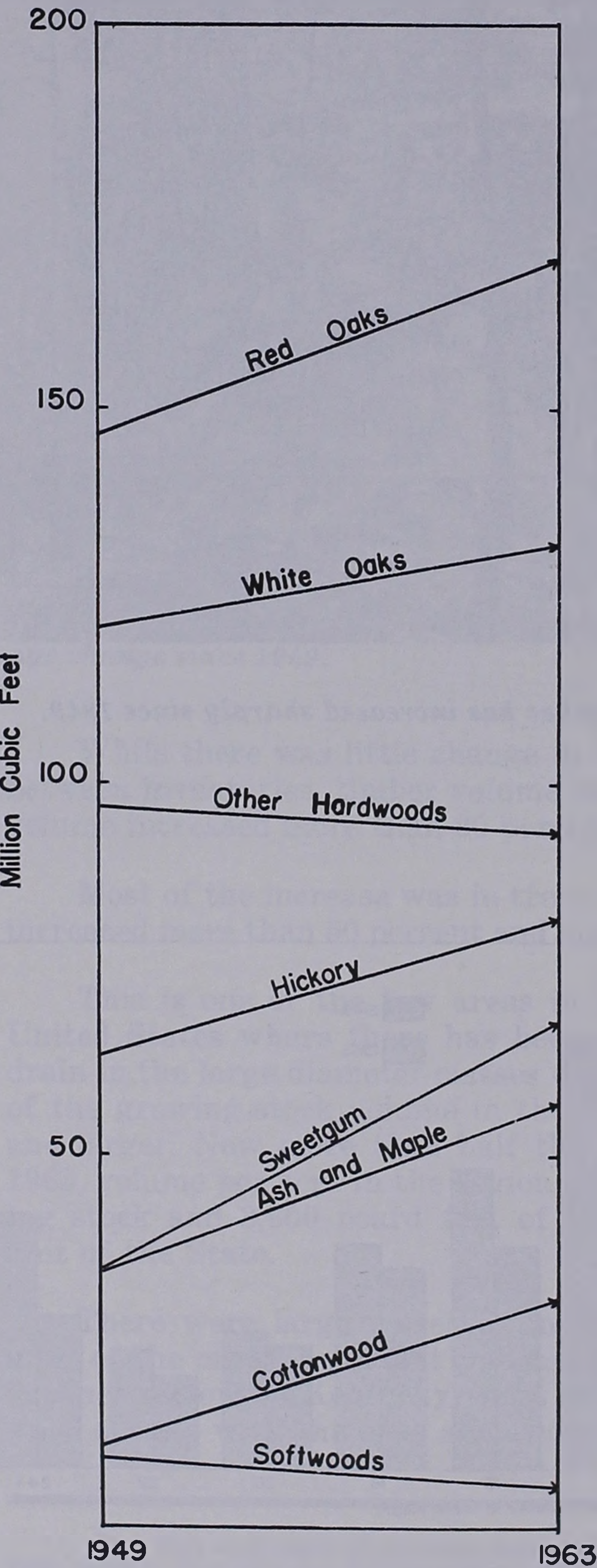


FIGURE 6. — Change in sawtimber volume by species groups, 1949-1963.

FIGURE 5. — Change in growing-stock volume by species groups, 1949-1963.



## TIMBER INDUSTRIES AND DRAIN

During 1962, 9.1 million cubic feet of growing stock were cut from the Western Unit. This was 7 percent of the total cut in Kentucky for that year. Included in the harvest were 48.9 million board feet of sawtimber. More than half the total cut was from oak species with cottonwood, hickory, yellow-poplar, and sweetgum following in order of importance. Almost half of the cottonwood sawtimber and three-fourths of the cypress sawtimber harvested in Kentucky during 1962 came from this region (fig.7).



*FIGURE 7. — A large amount of bottomland sawtimber is cut from this area.*

A major share of the timber cut went to the region's 35 primary wood-using plants, most of which are sawmills (fig. 8). The region's sawmills produced about 40 million board feet of lumber in 1962. Other primary plants in the region consumed less than 5 million board feet of logs and bolts, but most of this wood was high-quality white oak and hickory used for cooperage and handle stock.



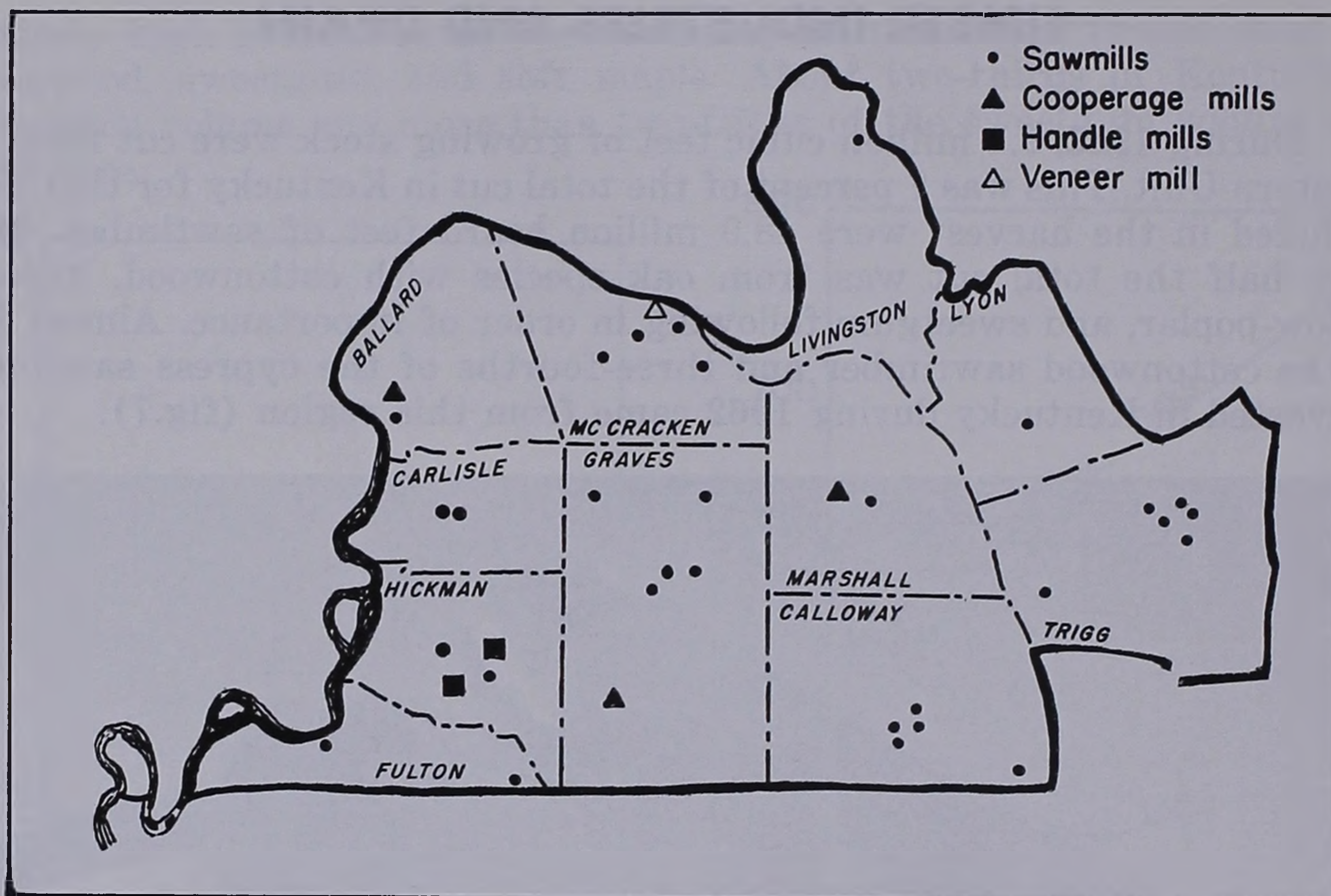


FIGURE 8. — Location of primary wood-using industries, 1963.

## THE CURRENT BALANCE BETWEEN GROWTH AND CUT

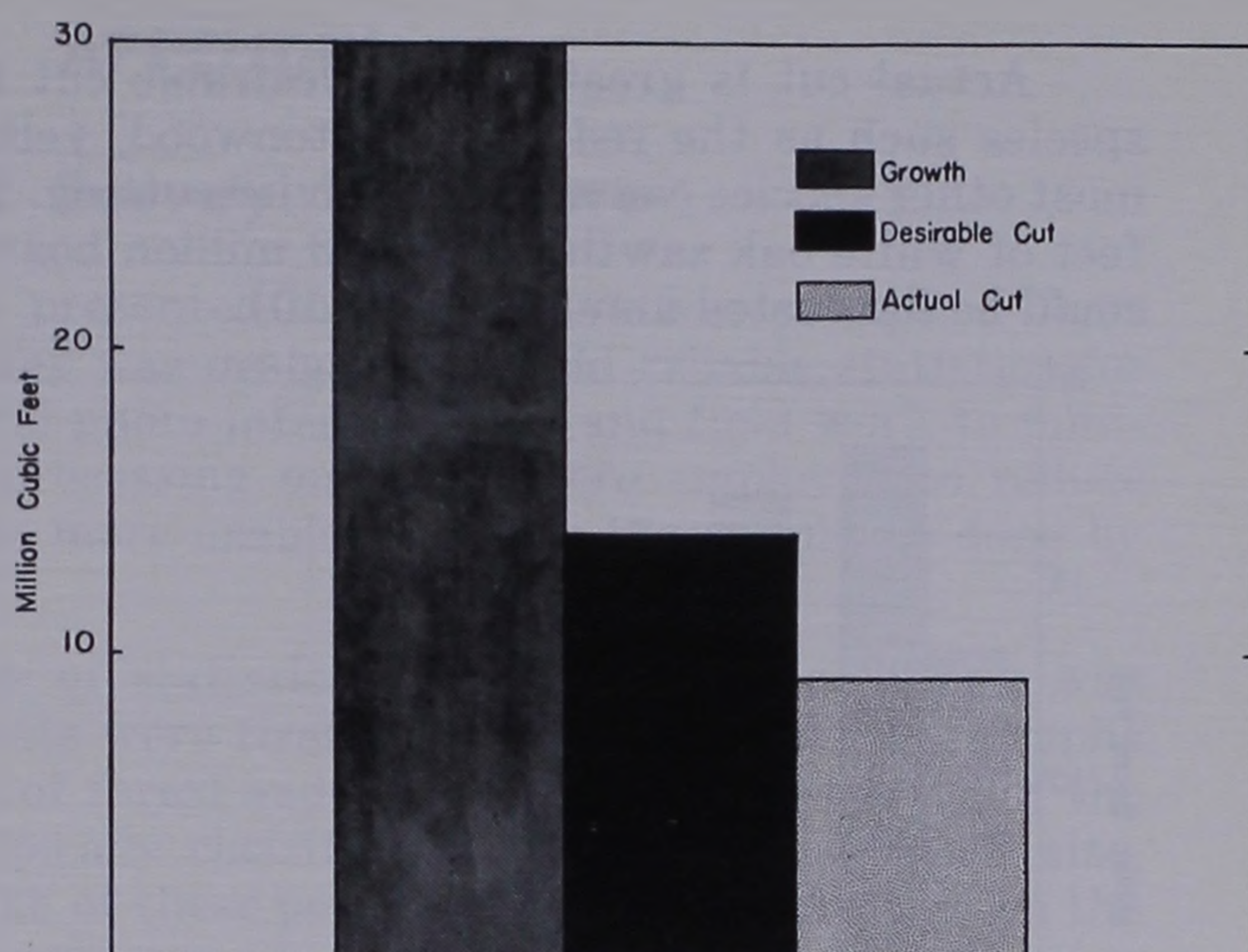
Currently, the net annual growth of growing stock in the Unit is about 30 million cubic feet or 4.6 percent of the inventory before allowances are made for cutting (fig. 9). Sawtimber volume is growing at an annual rate of 153 million board feet or 5.9 percent. This annual growth averages 41 cubic feet and 212 board feet per acre. Western Kentucky's per acre growth rates are much higher than those in other regions of the State, due primarily to heavier stocking, on the average, per forest acre.

While relatively high in comparison to other parts of the State, timber growth rates are still below the potential of the Unit's woodlands. Poor growing stock and culls occupy space that could be supporting desirable crop trees. Only one-fifth of the commercial forest area is in a highly productive condition; i.e., well stocked with desirable growing-stock trees, or expected to attain such stocking in the near future.

A comparison of net annual growth with the 1962 cut indicates that growing stock is increasing more than 20 <sup>million</sup> thousand cubic feet and sawtimber more than 100 ~~thousand~~ board feet annually. This means that the growing stock and sawtimber inventories are enlarging about 3 percent and 4 percent, respectively, each year.



**FIGURE 9.** — *Growth, desirable cut, and actual cut of growing stock, 1963.*



At present, about three-fifths of the growth occurs on trees of pole-timber size while more than four-fifths of the cut is from sawtimber trees. But growth exceeds cut for both kinds of timber. The ratio of volume growth to volume cut for poletimber trees is about 12 to 1 while that for trees of sawtimber size is less than 2 to 1. Cut exceeds growth for only a few species.

## **MORE TIMBER CAN BE HARVESTED**

A desirable annual cut of almost 14 million cubic feet of growing stock, including 59 million board feet of sawtimber, has been estimated for the Western Unit of Kentucky. This is the volume that should be removed in harvest and emergency cuts and commercial thinnings. The aim of the desirable cut is to improve timber productivity with the long-range goal of establishing a regulated forest producing a sustained yield of wood for the manufacture of consumer goods.

A comparison of desirable cut with actual cut points to shortages and surpluses in the timber supply. In the Western Unit, the desirable cut for all growing stock exceeds the actual cut (that made in 1962) by about 5 million cubic feet. This surplus, which is more than half the actual cut, indicates that cutting can be expanded. But the same magnitude of surplus does not exist for all sizes and species of timber. If markets were available, about three times as much poletimber volume could be cut annually. This excess could be harvested for pulpwood, charcoal, or other timber products which do not have rigid size and log-quality standards. The desirable cut of sawtimber volume also exceeds the actual cut, but by a lesser amount.



Actual cut is greater than desirable cut for a few important timber species such as the red oaks, cottonwood, yellow-poplar, and cypress. But most other species can sustain heavier cutting. An additional 9 million board feet of white oak sawtimber and 3 million board feet of hickory sawtimber could be harvested annually (fig. 10).

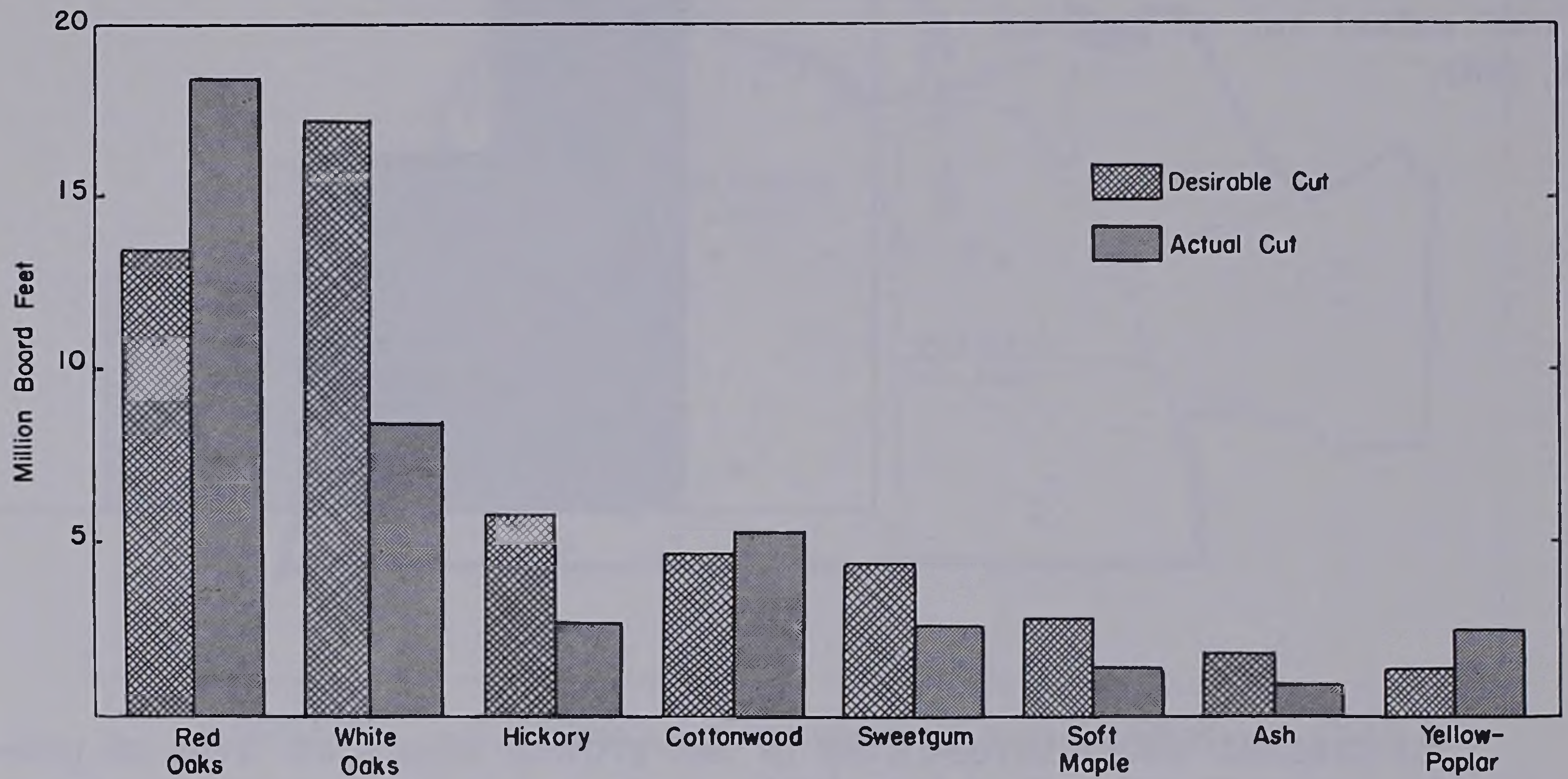


FIGURE 10. — Desirable cut and actual cut of sawtimber for selected species, 1963.



## **APPENDIX**

### **Forest Survey Procedure**

The resource statistics presented in this report were obtained from a sampling survey. The survey was designed to yield reliable statistics for large areas. It combined aerial photo interpretation and field work to minimize costs. Electronic data-processing machines were employed to reduce computing time and generate more usable statistics than could be done by hand methods.

To attain specific levels of statistical accuracy, triple sampling was used. A large number of points were first examined on aerial photographs to determine the proportions of forest and nonforest land. One-fourth of the forest points were stereoscopically classified as to forest type, stand size, stocking, and site. One-twelfth of these points were in turn examined on the ground. The ground classification provided a check on photo classification and a means of improving estimates of forest area.

At each forest ground-check point a plot was established. Trees were classified and measured as a basis for estimating timber volume, growth, mortality, and quality. Ownership was determined for each plot.

Timber-cut information was based on forest-industry production records for 1962, on stump counts at forest-inventory plots, cutting records from large owners, and utilization factors based on a logging-residue study.

### **Accuracy of Survey Estimate**

Estimates of forest area and timber volume are subject to two kinds of errors: (1) nonsampling errors caused by mistakes in judgment, recording of measurements, or in calculations, and (2) sampling errors inherent in statistical work.

Nonsampling errors are not measurable and cannot be shown. They are avoided as much as possible through training of personnel, close supervision, and careful checking of all phases of the work.

Sampling errors are subject to the laws of chance and may be estimated by statistical methods. These errors are held to acceptable levels commensurate with the values involved and funds available by adjusting the survey design and the intensity of the sample. With a probability of two out of three (that is, relatively good) the accompanying table shows the accuracy of the data presented in this report. The sampling error of a survey is less for a large class or block than for a smaller class or other subdivision. Some of the resource statistics presented in this report have such large errors that it would be unwise to use them alone — but if they are combined with other figures the error may be reduced enough to warrant their use. Weak figures are shown to allow various combinations of data.



*Guides for judging accuracy by size of area  
and by volume of growing stock and sawtimber*

Commercial- forest land	Standard error of sampling	Growing-stock volumes	Standard error of sampling	Sawtimber volumes	Standard error of sampling
<i>Acres</i>	<i>Percent</i>	<i>Thousand cu. ft.</i>	<i>Percent</i>	<i>Thousand bd. ft.</i>	<i>Percent</i>
1,000,000	4.9	1,000,000	4.8	2,610,850	7.0
721,300	5.7	641,430	6.0	1,000,000	11.4
500,000	6.9	500,000	6.8	500,000	16.1
300,000	8.9	300,000	8.7	300,000	20.7
100,000	15.4	100,000	15.1	100,000	35.9
50,000	21.8	50,000	21.4	50,000	50.8
30,000	28.2	30,000	27.6	30,000	65.6
10,000	48.8	10,000	47.9	10,000	113.6
5,000	69.0	5,000	67.7		

The occurrence of a (—) in the statistical tables of this report indicates one of two things:

- (1) No units were measured by the inventory.
- (2) The quantity of data measured was insignificant and did not warrant reporting.

## Definition of Terms

### *Land and Forest Area*

*Gross area.* — The entire area of land and water as determined by the Bureau of the Census.

*Land area.* — The area of dry land and land temporarily or partially covered by water such as marshes, swamps, and flood plains; streams, and sloughs less than  $\frac{1}{8}$  mile wide; and lakes, reservoirs, and ponds less than 40 acres in area.

*Forest land.* — Land at least 10 percent stocked by forest trees of any size, or formerly having such tree cover and not currently developed for nonforest use. Does not include urban or thickly settled residential and resort areas, city parks, orchards, farmsteads, improved roads, or land developed and maintained for nonforest use by fencing, seeding, and so forth. The minimum area for classification of forest land or classes of forest land was 1 acre. Roadside, streamside, and shelterbelt strips of timber having a crown width of at least 120 feet qualified as forest land. Unimproved roads and trails, streams, and clearings in forest land were included as forest if less than 120 feet wide.



*Commercial-forest land.* — Forest land that is producing or capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation.

*Noncommercial-forest land.* — Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions; and productive, public-forest land withdrawn from commercial timber use through statute or administrative regulation.

### *Ownership*

*Public.* — All publicly owned land other than National Forest.

*Forest industry.* — Land owned by companies or individuals operating wood-using plants.

*Farmer and miscellaneous private.* — All privately owned land except forest industry land.

### *Forest Types*

*Forest type.* — A classification of forest land based upon species composition considering all live trees.

*Oak-pine.* — Forests in which 50 percent or more of the stocking is hardwoods (usually upland oaks) but in which southern pine makes up at least 25 percent of the stocking.

*White oak.* — Forests in which 50 percent or more of the stocking is white oak, except stands that classify as redcedar-hardwoods or oak-pine.

*Oak-hickory.* — Forests in which 50 percent or more of the stocking is upland oaks or hickories, singly or in combination, except stands that classify as oak-pine, redcedar-hardwoods, or white oak.

*Central mixed hardwoods.* — Forests in which 50 percent or more of the stocking is a combination of hardwood species, principally yellow-poplar, maple, beech, basswood, black walnut, elm, and northern red oak, except stands that classify as redcedar-hardwoods, oak-pine, oak-hickory, maple-beech, or elm-ash-cottonwood.

*Oak-gum-cypress.* — Bottomland forests in which 50 percent or more of the stocking is blackgum, sweetgum, oak, or southern cypress, singly or in combination, except stands that classify as oak-pine.

*Elm-ash-cottonwood.* — Forests in which 50 percent or more of the stocking is elm, ash, or cottonwood, singly or in combination except stands that classify as redcedar-hardwoods or oak-pine.



### *Stand-Size Classes*

*Stand-size class.* — A classification of forest land based on the predominant size of timber present—sawtimber, poletimber, or seedlings and saplings.

*Sawtimber stands.* — Stands at least 10 percent stocked with growing-stock trees, with half or more of this stocking in sawtimber or poletimber trees and with sawtimber stocking at least equal to poletimber stocking.

*Poletimber stands.* — Stands at least 10 percent stocked with growing-stock trees, and with half or more of this stocking in sawtimber and/or poletimber trees and with poletimber stocking exceeding that of sawtimber.

*Seedling-sapling stands.* — Stands at least 10 percent stocked with growing-stock trees and with seedlings and/or saplings comprising more than half of this stocking.

*Nonstocked areas.* — Commercial-forest land less than 10 percent stocked with growing-stock trees.

### *Stocking Classes*

*Stocking class.* — A classification of commercial-forest land based on the percent of area occupied by growing-stock trees. *Growing-stock trees* include all live trees except culls.

*Well stocked.* — Stands that are 70 percent or more stocked with growing-stock trees.

*Medium stocked.* — Stands that are 40 to 69 percent stocked with growing-stock trees.

*Poorly stocked.* — Stands that are from 10 to 39 percent stocked with growing-stock trees.

*Nonstocked.* — Areas of commercial-forest land not qualifying as sawtimber, poletimber, or seedling and sapling stands. These areas may contain some volume but less than 10 percent of the growing space is effectively utilized by growing stock.

### *Area-Condition Classes*

A classification of commercial-forest land based upon stocking by desirable growing-stock trees and conditions affecting current and prospective timber growth. *Desirable growing-stock trees* are those that have no serious defects in quality limiting present or prospective use. They have relatively high vigor and contain no pathogens that may result in death or serious deterioration before rotation age. These are the trees that would be favored in silvicultural operations.



*Desirable.* — Areas 70 percent or more stocked with desirable trees.

*Moderate and favorable.* — Areas 40 to 70 percent stocked with desirable trees and with 30 percent or less of the area having other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

*Moderate and unfavorable.* — Areas 40 to 70 percent stocked with desirable trees and with more than 30 percent of the area having other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

*Poor but favorable.* — Areas less than 40 percent stocked with desirable trees and with 30 percent or less of the area having other trees and/or inhibiting vegetation or surface conditions that prevent occupancy by desirable trees.

*Poor and unfavorable.* — Areas less than 40 percent stocked with desirable trees and with more than 30 percent of the area having other trees and/or inhibiting vegetation or surface conditions that prevent occupancy by desirable species.

### *Volume Classification*

*Growing-stock volume.* — Cubic-foot volume of sound wood in the bole of sawtimber and poletimber trees from the stump to a minimum 4-inch-top diameter outside bark or to the point where the central stem breaks into limbs.

*Sawtimber volume.* — Net volume of the saw-log portion of live sawtimber trees in board feet, International  $\frac{1}{4}$ -inch rule. The saw-log portion extends from stump to a minimum top diameter outside bark of 6 inches for softwoods and 8 inches for hardwoods or to the point where defects reduce saw-log quality below Standard Log Grade 3 or Tie-and-Timber Grade.

### *Tree-Size Classes*

*Sawtimber trees.* — Live trees of commercial species containing at least an 8-foot saw log. Softwoods must be at least 9 inches and hardwoods at least 11 inches d.b.h. outside bark.

*Poletimber trees.* — Live trees of commercial species at least 5 inches d.b.h. but smaller than sawtimber size, and of good form and vigor.

*Saplings.* — Live trees of commercial species 1 to 5 inches d.b.h. and of good form and vigor.

*Seedlings.* — Live trees of commercial species less than 1 inch d.b.h. that are expected to survive.



## *Growth*

*Net annual growth.* — The annual change in volume of sound wood in live sawtimber and poletimber trees and the total volume of trees entering these classes through ingrowth less volume losses resulting from natural causes.

*Growing-stock growth.* — Net annual growth of poletimber and sawtimber trees in cubic feet.

*Sawtimber growth.* — Net annual growth of sawtimber trees in board feet, International  $\frac{1}{4}$ -inch rule.

## *Timber Cut*

*Timber cut from growing stock.* — The net cubic-foot volume of sound wood in live sawtimber and poletimber trees cut for forest products during a specified year, including both roundwood products and logging residues.

*Timber cut from sawtimber.* — The net board-foot volume of live sawtimber trees cut for forest products during a specified year, including both roundwood products and logging residues.

*Desirable cut (formerly called allowable cut).* — The net volume of live sawtimber and poletimber trees that can be cut annually during the next 10 years in commercial-logging operations while maintaining or increasing growing stock and while effecting a reasonably even distribution of age classes below the rotation age selected for each type. It includes harvest and improvement cuts yielding 3 cords or more per acre, and one-tenth of the entire net volume of stands 10 or more years beyond the rotation age. Desirable cut includes all timber of merchantable size that should be cut from commercial-forest land in order to salvage, rejuvenate, or improve the stands and increase the growth without regard to restraints of ownership, inaccessibility, or the profit motive. Some of this timber may not be available for sale, too hard to get at or too scattered, or of currently unwanted species or quality. More forest products may be obtained by reducing the "forest capital."



*Rotation ages for saw-log trees in extensively managed stands  
by forest-type and site-index classes*

(In years)

Forest type	Site index (50-year height in feet)*						
	40	50	60	70	80	90	100+
Southern pine	120	110	90	--	--	--	--
Redcedar-hardwoods	120	110	90	--	--	--	--
Oak-pine	120	110	90	--	--	--	--
White oak	120	110	90	80	75	70	--
Oak-hickory	120	110	90	80	75	70	--
Central mixed hardwoods	--	110	90	80	75	70	60
Maple-beech	--	100	100	100	100	--	--
Oak-gum-cypress	--	--	--	80	75	70	60
Elm-ash-cottonwood†	--	--	--	80	70	60	60

\* Except in the case of cottonwood for which it is total height at 25 years.

† The rotation for cottonwood is half of the age shown.

### *Miscellaneous Definitions*

*Site class.* — A classification of commercial-forest land based on potential yields in cubic feet per acre of mean annual growth at culmination of increment in fully stocked stands of desirable trees.

*D.b.h. (Diameter at breast height).* — Tree diameter in inches measured outside the bark at a point 4½ feet above the ground.

*Diameter class.* — Where data are presented in 2-inch diameter classes, they include diameters from 1.0 inches below to 0.9 inches above the stated midpoint; e.g., trees 5.0 inches to and including 6.9 inches, are included in the 6-inch class.



# Principal Commercial Tree Species of Kentucky<sup>2</sup>

## Softwood Species

Cypress (baldcypress) .....	<i>Taxodium distichum</i> (L.) Rich.
Hemlock (eastern) .....	<i>Tsuga canadensis</i> (L.) Carr.
Pine group includes —	
Shortleaf pine .....	<i>Pinus echinata</i> Mill.
Other yellow pines:	
Pitch pine .....	<i>P. rigida</i> Mill.
Virginia pine .....	<i>P. virginiana</i> Mill.
White pine (eastern) .....	<i>P. strobus</i> L.
Redcedar (eastern) .....	<i>Juniperus virginiana</i> L.

## Hardwood Species

Ash .....	<i>Fraxinus</i> L. species
Basswood .....	<i>Tilia</i> L. species
Beech (American) .....	<i>Fagus grandifolia</i> Ehrh.
Birch (yellow) .....	<i>Betula alleghaniensis</i> Britton
Blackgum .....	<i>Nyssa</i> L. species
Black walnut .....	<i>Juglans nigra</i> L.
Cottonwood (eastern) .....	<i>Populus deltoides</i> Bartr.
Hickory .....	<i>Carya</i> Nutt. species
Maple (hard) includes —	
Black maple .....	<i>Acer nigrum</i> Michx. f.
Sugar maple .....	<i>A. saccharum</i> Marsh.
Maple (soft) includes —	
Boxelder .....	<i>A. negundo</i> L.
Red maple .....	<i>A. rubrum</i> var. <i>rubrum</i> L.
Silver maple .....	<i>A. saccharinum</i> L.
Oak group includes —	
Select red oaks:	
Cherrybark oak .....	<i>Quercus falcata</i> var. <i>pagodaefolia</i> Ell.
Northern red oak .....	<i>Q. rubra</i> L.
Shumard oak .....	<i>Q. shumardii</i> Buckl.
Other red oaks:	
Black oak .....	<i>Q. velutina</i> Lam.
Pin oak .....	<i>Q. palustris</i> Muenchh.
Scarlet oak .....	<i>Q. coccinea</i> Muenchh.
Shingle oak .....	<i>Q. imbricaria</i> Michx.
Southern red oak .....	<i>Q. falcata</i> Michx.
Water oak .....	<i>Q. nigra</i> L.
Willow oak .....	<i>Q. phellos</i> L.

<sup>2</sup> The common and scientific names are based on: Little, Elbert L., Jr. CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA). U.S. Dept. Agr. Handb. 41, 472 pp. 1953.



Select white oaks:

Bur oak .....	<i>Q. macrocarpa</i> Michx.
Chinkapin oak .....	<i>Q. muehlenbergii</i> Engelm.
Swamp chestnut oak .....	<i>Q. michauxii</i> Nutt.
Swamp white oak .....	<i>Q. bicolor</i> Willd.
White oak .....	<i>Q. alba</i> L.

Other white oaks:

Chestnut oak .....	<i>Q. prinus</i> L.
Overcup oak .....	<i>Q. lyrata</i> Walt.
Post oak .....	<i>Q. stellata</i> var. <i>stellata</i> Wangenh.

Sweetgum ..... *Liquidambar styraciflua* L.

Yellow-poplar ..... *Liriodendron tulipifera* L.

Other hardwoods includes —

Birch (river) .....	<i>Betula nigra</i> L.
Buckeye (Ohio) .....	<i>Aesculus glabra</i> Willd.
Buckeye (yellow) .....	<i>A. octandra</i> Marsh.
Butternut .....	<i>Juglans cinerea</i> L.
Cherry (black) .....	<i>Prunus serotina</i> Ehrh.
Coffeetree (Kentucky) .....	<i>Gymnocladus dioicus</i> (L.) K. Koch.
Cucumbertree .....	<i>Magnolia acuminata</i> L.
Dogwood (flowering) .....	<i>Cornus florida</i> L.
Elm .....	<i>Ulmus</i> L. species
Hackberry .....	<i>Celtis occidentalis</i> L.
Honeylocust .....	<i>Gleditsia triacanthos</i> L.
Locust (black) .....	<i>Robinia pseudoacacia</i> L.
Mulberry (red) .....	<i>Morus rubra</i> L.
Osage-orange .....	<i>Maclura pomifera</i> (Raf.) Schneid.
Persimmon (common) .....	<i>Diospyros virginiana</i> L.
Sassafras .....	<i>Sassafras albidum</i> (Nutt.) Nees
Sycamore (American) .....	<i>Platanus occidentalis</i> L.
Willow (black) .....	<i>Salix nigra</i> Marsh.



## Statistical Tables

The following tables present forest-resource data for the Western Unit and each of its 11 counties. Tables 1-7 contain information on land and forest area; tables 8-12 information on numbers of trees and timber volume; and tables 13-18 information on growth, cut, and desirable cut. Data for individual counties are shown in tables 1, 4, 10, 14, and 18.

Table 1.--*Area of land and forest land by counties*  
*Western Unit, Kentucky, 1963*

County	Gross area*	Land area*	Forest land			Commercial forest as a percent of land area
			All forest	Non- commercial	Commercial	
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Percent</i>
Ballard	178,500	165,800	47,300	--	47,300	28.5
Calloway	261,700	243,800	77,100	--	77,100	31.6
Carlisle	129,900	125,400	42,400	--	42,400	33.8
Fulton	142,100	131,200	32,300	--	32,300	24.6
Graves	358,400	358,400	80,200	--	80,200	22.4
Hickman	162,600	158,700	38,000	100	37,900	23.9
Livingston	218,900	202,900	73,300	--	73,300	36.1
Lyon	168,300	162,600	80,600	--	80,600	49.6
McCracken	170,900	160,600	37,600	--	37,600	23.4
Marshall	217,000	193,900	66,100	1,800	64,300	33.2
Trigg	299,500	292,500	148,300	--	148,300	50.7
Total	2,307,800	2,195,800	723,200	1,900	721,300	32.8

\* Gross area and land area are from Bureau of Census, 1960.

Table 2.--*Area of commercial-forest land by ownership and stand-size class*  
*Western Unit, Kentucky, 1963*

(In acres)

Ownership class	All stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
Public	85,200	66,200	5,300	13,700	--
Forest industry	18,500	18,500	--	--	--
Farmer and miscellaneous private	617,600	354,300	117,700	145,600	--
All ownerships	721,300	439,000	123,000	159,300	--



Table 3.--*Area of commercial-forest land by stocking and stand-size class*  
*Western Unit, Kentucky, 1963*

(In acres)

Stocking class (percent)	All stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
70 or more	307,200	242,100	23,400	41,700	--
40-70	332,700	166,600	94,600	71,500	--
10-40	81,400	30,300	5,000	46,100	--
Less than 10	--	--	--	--	--
All classes	721,300	439,000	123,000	159,300	--

Table 4.--*Area of commercial-forest land by forest type and stand-size class by county*  
*Western Unit, Kentucky, 1963*

(In acres)

ALL COUNTIES

Forest type	All stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
Oak-pine	6,500	--	6,500	--	--
White oak	9,200	6,100	3,100	--	--
Oak-hickory	298,900	192,700	65,800	40,400	--
Central mixed hardwoods	180,700	73,900	13,500	93,300	--
Oak-gum-cypress	60,500	53,100	3,500	3,900	--
Elm-ash-cottonwood	165,500	113,200	30,600	21,700	--
All types	721,300	439,000	123,000	159,300	--

BALLARD COUNTY

Oak-pine	--	--	--	--	--
White oak	100	100	--	--	--
Oak-hickory	11,700	7,900	1,700	2,100	--
Central mixed hardwoods	10,900	5,700	100	5,100	--
Oak-gum-cypress	4,500	3,900	600	--	--
Elm-ash-cottonwood	20,100	15,800	1,600	2,700	--
All types	47,300	33,400	4,000	9,900	--

CALLOWAY COUNTY

Oak-pine	2,300	--	2,300	--	--
White oak	300	200	100	--	--
Oak-hickory	37,600	22,100	8,900	6,600	--
Central mixed hardwoods	20,800	6,200	1,400	13,200	--
Oak-gum-cypress	8,500	7,300	--	1,200	--
Elm-ash-cottonwood	7,600	3,300	3,300	1,000	--
All types	77,100	39,100	16,000	22,000	--



Table 4.--*Area of commercial-forest land by forest type and stand-size class by county*  
*Western Unit, Kentucky, 1963-- Continued*

(In acres)

CARLISLE COUNTY

Forest type	All stands	Saw-timber	Pole-timber	Seedlings and saplings	Non-stocked
Oak-pine	400	--	400	--	--
White oak	--	--	--	--	--
Oak-hickory	9,200	6,100	1,700	1,400	--
Central mixed hardwoods	7,300	2,900	300	4,100	--
Oak-gum-cypress	6,800	6,200	600	--	--
Elm-ash-cottonwood	18,700	14,100	2,300	2,300	--
All types	42,400	29,300	5,300	7,800	--

FULTON COUNTY

Oak-pine	600	--	600	--	--
White oak	--	--	--	--	--
Oak-hickory	8,700	5,700	1,800	1,200	--
Central mixed hardwoods	6,100	1,300	400	4,400	--
Oak-gum-cypress	3,000	2,300	400	300	--
Elm-ash-cottonwood	13,900	9,700	1,500	2,700	--
All types	32,300	19,000	4,700	8,600	--

GRAVES COUNTY

Oak-pine	1,500	--	1,500	--	--
White oak	400	300	100	--	--
Oak-hickory	33,500	14,800	8,000	10,700	--
Central mixed hardwoods	30,400	7,600	2,000	20,800	--
Oak-gum-cypress	4,800	4,300	--	500	--
Elm-ash-cottonwood	9,600	2,600	5,200	1,800	--
All types	80,200	29,600	16,800	33,800	--

HICKMAN COUNTY

Oak-pine	--	--	--	--	--
White oak	--	--	--	--	--
Oak-hickory	8,000	4,900	1,500	1,600	--
Central mixed hardwoods	9,300	4,300	400	4,600	--
Oak-gum-cypress	3,800	3,300	500	--	--
Elm-ash-cottonwood	16,800	14,200	1,000	1,600	--
All types	37,900	26,700	3,400	7,800	--



Table 4.-- *Area of commercial-forest land by forest type and stand-size class by county*  
*Western Unit, Kentucky, 1963-- Continued*

(In acres)

LIVINGSTON COUNTY

Forest type	All stands	Saw-timber	Pole-timber	Seedlings and saplings	Non-stocked
Oak-pine	--	--	--	--	--
White oak	1,700	1,100	600	--	--
Oak-hickory	33,100	22,300	6,700	4,100	--
Central mixed hardwoods	19,400	8,200	2,100	9,100	--
Oak-gum-cypress	5,900	5,500	100	300	--
Elm-ash-cottonwood	13,200	8,300	3,500	1,400	--
All types	73,300	45,400	13,000	14,900	--

LYON COUNTY

Oak-pine	500	--	500	--	--
White oak	2,000	1,400	600	--	--
Oak-hickory	42,800	30,600	9,300	2,900	--
Central mixed hardwoods	17,600	8,800	1,800	7,000	--
Oak-gum-cypress	4,700	4,200	200	300	--
Elm-ash-cottonwood	13,000	8,300	2,200	2,500	--
All types	80,600	53,300	14,600	12,700	--

McCRACKEN COUNTY

Oak-pine	600	--	600	--	--
White oak	--	--	--	--	--
Oak-hickory	10,500	7,500	1,900	1,100	--
Central mixed hardwoods	9,300	4,200	400	4,700	--
Oak-gum-cypress	4,600	4,300	100	200	--
Elm-ash-cottonwood	12,600	8,800	2,700	1,100	--
All types	37,600	24,800	5,700	7,100	--

MARSHALL COUNTY

Oak-pine	--	--	--	--	--
White oak	800	600	200	--	--
Oak-hickory	23,000	14,500	5,400	3,100	--
Central mixed hardwoods	18,900	9,400	1,800	7,700	--
Oak-gum-cypress	5,300	4,600	500	200	--
Elm-ash-cottonwood	16,300	11,400	2,600	2,300	--
All types	64,300	40,500	10,500	13,300	--



Table 4.--*Area of commercial-forest land by forest type and stand-size class by county*  
*Western Unit, Kentucky, 1963 -- Continued*

(In acres)

TRIGG COUNTY

Forest type	All stands	Saw-timber	Pole-timber	Seedlings and saplings	Non-stocked
Oak-pine	600	--	600	--	--
White oak	3,900	2,400	1,500	--	--
Oak-hickory	80,800	56,300	18,900	5,600	--
Central mixed hardwoods	30,700	15,300	2,800	12,600	--
Oak-gum-cypress	8,600	7,200	500	900	--
Elm-ash-cottonwood	23,700	16,700	4,700	2,300	--
All types	148,300	97,900	29,000	21,400	--

Table 5.--*Area of commercial-forest land by forest type and site class*  
*Western Unit, Kentucky, 1963*

(In acres)

Forest type	All sites	Site class (potential growth per acre per year in cubic feet)			
		120 or more	85 to 120	50 to 85	Less than 50
Oak-pine	6,500	--	--	6,500	--
White oak	9,200	--	9,200	--	--
Oak-hickory	298,900	22,600	150,700	125,600	--
Central mixed hardwoods	180,700	15,300	49,100	99,800	16,500
Oak-gum-cypress	60,500	--	35,500	25,000	--
Elm-ash-cottonwood	165,500	8,900	31,900	77,000	47,700
All types	721,300	46,800	276,400	333,900	64,200

Table 6.--*Area of commercial-forest land by forest type and stand-age class*  
*Western Unit, Kentucky, 1963*

(In acres by age in years)

Forest type	All ages	Less than 9	10-19	20-29	30-39	40-49	50-59	60-79	80-99	100 or more
Oak-pine	6,500	--	--	6,500	--	--	--	--	--	--
White oak	9,200	--	--	--	--	--	9,200	--	--	--
Oak-hickory	298,900	--	22,500	17,100	68,600	56,800	50,900	49,500	17,600	15,900
Central mixed hardwoods	180,700	9,800	41,600	22,700	37,800	26,500	22,700	19,600	--	--
Oak-gum-cypress	60,500	--	--	7,000	14,100	--	3,900	35,500	--	--
Elm-ash-cottonwood	165,500	5,200	11,200	26,400	23,100	62,000	20,400	3,000	9,700	4,500
All types	721,300	15,000	75,300	79,700	143,600	145,300	107,100	107,600	27,300	20,400



Table 7.--*Area of commercial-forest land by forest type and area-condition class*  
*Western Unit, Kentucky, 1963*

( In acres )

Forest type	All area conditions	Desirable	Moderate and favorable	Moderate and unfavorable	Poor but favorable	Poor and unfavorable
Oak-pine	6,500	--	--	--	--	6,500
White oak	9,200	--	6,100	--	--	3,100
Oak-hickory	298,900	4,600	68,400	41,400	28,600	155,900
Central mixed hardwoods	180,700	--	31,900	14,600	16,800	117,400
Oak-gum-cypress	60,500	--	16,900	--	4,900	38,700
Elm-ash-cottonwood	165,500	9,900	15,100	22,500	19,800	98,200
All types	721,300	14,500	138,400	78,500	70,100	419,800

Table 8.--*Number of growing-stock trees on commercial-forest land by diameter class and species group*  
*Western Unit, Kentucky, 1963*

(In thousand trees)

D.b.h. class (inches)	All species	Softwoods	Hardwoods
2	98,600	380	98,220
4	43,100	530	42,570
6	25,740	220	25,520
8	14,790	120	14,670
10	9,870	30	9,840
12	6,550	130	6,420
14	4,670	40	4,630
16	2,280	10	2,270
18	1,290	--	1,290
20	660	--	660
22	410	--	410
24+	580	10	570
All diameter classes	208,540	1,470	207,070

Table 9.--*Volume of growing stock and sawtimber on commercial-forest land by ownership and species group*  
*Western Unit, Kentucky, 1963*

Ownership class	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Public	98,750	190	98,560	431,090	--	431,090
Forest industry	27,210	--	27,210	130,630	--	130,630
Farmer and miscellaneous private	515,470	4,870	510,600	2,049,130	24,650	2,024,480
All ownerships	641,430	5,060	636,370	2,610,850	24,650	2,586,200

\* International 1/4-inch rule.



Table 10.--*Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*  
*Western Unit, Kentucky, 1963*

ALL COUNTIES

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	1,420	--	1,420	8,610	--	8,610
Cypress	2,410	--	2,410	14,190	11,520	2,670
Redcedar	1,230	830	400	1,850	1,850	--
Total softwoods	5,060	830	4,230	24,650	13,370	11,280
Hardwoods:						
Select white oak	85,510	28,330	57,180	341,260	312,030	29,230
Select red oak	26,280	5,440	20,840	134,950	131,460	3,490
Other white oak	47,440	19,320	28,120	161,120	150,040	11,080
Other red oak	145,920	39,780	106,140	642,300	582,630	59,670
Hickories	81,790	32,900	48,890	302,850	279,290	23,560
Hard maple	9,990	4,910	5,080	32,860	32,860	--
Beech	1,520	400	1,120	7,010	7,010	--
Black walnut	1,430	300	1,130	7,110	7,110	--
Ash	22,440	10,460	11,980	70,460	68,380	2,080
Soft maple	23,940	7,840	16,100	94,260	87,310	6,950
Sweetgum	68,190	23,560	44,630	263,770	242,940	20,830
Blackgum	8,450	4,930	3,520	21,460	19,000	2,460
Cottonwood	30,880	140	30,740	197,950	197,950	--
Yellow-poplar	7,690	1,290	6,400	38,980	29,950	9,030
Basswood	430	--	430	2,750	--	2,750
Other	74,470	31,300	43,170	267,110	232,460	34,650
Total hardwoods	636,370	210,900	425,470	2,586,200	2,380,420	205,780
All species	641,430	211,730	429,700	2,610,850	2,393,790	217,060

BALLARD COUNTY

Softwoods:						
Shortleaf pine	--	--	--	--	--	--
Cypress	320	--	320	1,900	1,540	360
Redcedar	40	20	20	80	80	--
Total softwoods	360	20	340	1,980	1,620	360
Hardwoods:						
Select white oak	3,910	980	2,930	17,380	15,760	1,620
Select red oak	2,060	350	1,710	11,050	10,690	360
Other white oak	2,250	870	1,380	7,650	7,050	600
Other red oak	7,520	1,870	5,650	34,340	30,880	3,460
Hickories	5,070	1,500	3,570	22,290	20,390	1,900
Hard maple	640	230	410	2,710	2,710	--
Beech	50	10	40	210	210	--
Black walnut	130	10	120	740	740	--
Ash	2,170	1,050	1,120	6,410	6,170	240
Soft maple	2,540	1,010	1,530	8,560	7,880	680
Sweetgum	8,200	2,490	5,710	33,840	30,980	2,860
Blackgum	290	120	170	910	800	110
Cottonwood	4,910	30	4,880	31,410	31,410	--
Yellow-poplar	790	90	700	4,310	3,280	1,030
Basswood	30	--	30	190	--	190
Other	8,720	2,380	6,340	39,240	34,090	5,150
Total hardwoods	49,280	12,990	36,290	221,240	203,040	18,200
All species	49,640	13,010	36,630	223,220	204,660	18,560

\* International 1/4-inch rule.



Table 10.--*Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*  
*Western Unit, Kentucky, 1963--(Continued)*

CALLOWAY COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>
	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>
Softwoods:						
Shortleaf pine	460	--	460	2,790	--	2,790
Cypress	160	--	160	870	710	160
Redcedar	130	90	40	270	270	--
Total softwoods	750	90	660	3,930	980	2,950
Hardwoods:						
Select white oak	8,400	2,910	5,490	33,450	30,990	2,460
Select red oak	2,460	550	1,910	12,080	11,940	140
Other white oak	5,960	2,330	3,630	21,580	20,350	1,230
Other red oak	18,490	4,560	13,930	84,950	78,030	6,920
Hickories	7,150	3,650	3,500	21,670	20,320	1,350
Hard maple	760	430	330	2,140	2,140	--
Beech	190	30	160	1,020	1,020	--
Black walnut	90	30	60	350	350	--
Ash	1,430	700	730	4,380	4,320	60
Soft maple	670	290	380	2,130	2,020	110
Sweetgum	3,530	1,350	2,180	13,000	12,170	830
Blackgum	1,160	610	550	3,500	3,130	370
Cottonwood	1,370	10	1,360	8,420	8,420	--
Yellow-poplar	410	90	320	1,920	1,510	410
Basswood	50	--	50	340	--	340
Other	5,510	2,470	3,040	18,260	16,050	2,210
Total hardwoods	57,630	20,010	37,620	229,190	212,760	16,430
All species	58,380	20,100	38,280	233,120	213,740	19,380

CARLISLE COUNTY

Softwoods:						
Shortleaf pine	120	--	120	720	--	720
Cypress	230	--	230	1,350	1,100	250
Redcedar	10	10	--	50	50	--
Total softwoods	360	10	350	2,120	1,150	970
Hardwoods:						
Select white oak	3,470	1,010	2,460	14,820	13,460	1,360
Select red oak	1,900	380	1,520	10,350	10,010	340
Other white oak	2,500	1,090	1,410	7,080	6,540	540
Other red oak	7,820	1,890	5,930	34,720	31,260	3,460
Hickories	3,970	1,160	2,810	17,760	16,400	1,360
Hard maple	400	100	300	2,070	2,070	--
Beech	50	--	50	250	250	--
Black walnut	70	10	60	410	410	--
Ash	1,940	910	1,030	6,230	6,010	220
Soft maple	3,450	1,040	2,410	14,160	13,060	1,100
Sweetgum	7,020	2,040	4,980	29,260	26,830	2,430
Blackgum	300	110	190	1,100	970	130
Cottonwood	3,500	10	3,490	22,780	22,780	--
Yellow-poplar	740	90	650	3,950	3,020	930
Basswood	--	--	--	--	--	--
Other	6,560	3,140	3,420	21,730	18,870	2,860
Total hardwoods	43,690	12,980	30,710	186,670	171,940	14,730
All species	44,050	12,990	31,060	188,790	173,090	15,700

\* International 1/4-inch rule.



Table 10.--*Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*  
*Western Unit, Kentucky, 1963--(Continued)*

FULTON COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>bd. ft.*</i>	<i>Thousand</i> <i>bd. ft.*</i>	<i>Thousand</i> <i>bd. ft.*</i>
Softwoods:						
Shortleaf pine	140	--	140	840	--	840
Cypress	170	--	170	1,010	820	190
Redcedar	10	--	10	30	30	--
Total softwoods	320	--	320	1,880	850	1,030
Hardwoods:						
Select white oak	2,100	580	1,520	9,140	8,350	790
Select red oak	820	160	660	4,240	4,120	120
Other white oak	1,830	620	1,210	7,240	6,720	520
Other red oak	5,600	1,190	4,410	26,920	24,360	2,560
Hickories	1,930	850	1,080	6,600	6,060	540
Hard maple	180	100	80	580	580	--
Beech	40	10	30	180	180	--
Black walnut	50	10	40	280	280	--
Ash	1,150	540	610	3,530	3,430	100
Soft maple	1,120	520	600	3,280	3,050	230
Sweetgum	4,380	1,320	3,060	18,060	16,650	1,410
Blackgum	310	120	190	1,100	980	120
Cottonwood	3,140	10	3,130	20,400	20,400	--
Yellow-poplar	270	60	210	1,310	1,000	310
Basswood	20	--	20	100	--	100
Other	5,270	1,960	3,310	20,780	18,170	2,610
Total hardwoods	28,210	8,050	20,160	123,740	114,330	9,410
All species	28,530	8,050	20,480	125,620	115,180	10,440

GRAVES COUNTY

Softwoods:						
Shortleaf pine	380	--	380	2,300	--	2,300
Cypress	250	--	250	1,360	1,110	250
Redcedar	130	80	50	210	210	--
Total softwoods	760	80	680	3,870	1,320	2,550
Hardwoods:						
Select white oak	6,080	2,360	3,720	22,250	20,610	1,640
Select red oak	1,680	390	1,290	8,090	7,990	100
Other white oak	4,680	2,200	2,480	14,650	13,800	850
Other red oak	12,370	3,840	8,530	51,490	47,290	4,200
Hickories	6,320	3,400	2,920	18,070	16,840	1,230
Hard maple	1,020	490	530	3,240	3,240	--
Beech	110	30	80	510	510	--
Black walnut	100	20	80	460	460	--
Ash	1,340	680	660	3,890	3,830	60
Soft maple	870	350	520	2,920	2,760	160
Sweetgum	3,460	1,400	2,060	12,640	11,830	810
Blackgum	850	570	280	1,640	1,470	170
Cottonwood	2,390	20	2,370	14,740	14,740	--
Yellow-poplar	180	40	140	810	640	170
Basswood	100	--	100	630	--	630
Other	6,140	2,700	3,440	20,400	17,980	2,420
Total hardwoods	47,690	18,490	29,200	176,430	163,990	12,440
All species	48,450	18,570	29,880	180,300	165,310	14,990

\* International 1/4-inch rule.



Table 10.--*Volume of growing stock and sawtimber on commercial forest land by species and kind of material*  
*Western Unit, Kentucky, 1963--(Continued)*

HICKMAN COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>
	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>
Softwoods:						
Shortleaf pine	--	--	--	--	--	--
Cypress	160	--	160	990	800	190
Redcedar	50	30	20	50	50	--
Total softwoods	210	30	180	1,040	850	190
Hardwoods:						
Select white oak	3,100	730	2,370	14,020	12,740	1,280
Select red oak	1,430	230	1,200	7,960	7,710	250
Other white oak	1,560	690	870	4,430	4,100	330
Other red oak	6,230	1,520	4,710	28,240	25,440	2,800
Hickories	4,280	1,200	3,080	19,330	17,700	1,630
Hard maple	500	150	350	2,350	2,350	--
Beech	40	--	40	240	240	--
Black walnut	80	10	70	460	460	--
Ash	1,870	830	1,040	5,710	5,520	190
Soft maple	2,780	820	1,960	11,560	10,670	890
Sweetgum	7,460	2,540	4,920	29,020	26,630	2,390
Blackgum	230	70	160	950	830	120
Cottonwood	3,240	10	3,230	20,780	20,780	--
Yellow-poplar	630	150	480	2,960	2,250	710
Basswood	20	--	20	140	--	140
Other	7,240	2,390	4,850	30,710	26,670	4,040
Total hardwoods	40,690	11,340	29,350	178,860	164,090	14,770
All species	40,900	11,370	29,530	179,900	164,940	14,960

LIVINGSTON COUNTY

Softwoods:						
Shortleaf pine	--	--	--	--	--	--
Cypress	140	--	140	830	670	160
Redcedar	130	90	40	200	200	--
Total softwoods	270	90	180	1,030	870	160
Hardwoods:						
Select white oak	9,780	3,440	6,340	37,410	34,220	3,190
Select red oak	2,720	570	2,150	14,020	13,680	340
Other white oak	5,550	2,080	3,470	20,310	18,900	1,410
Other red oak	15,990	4,200	11,790	71,420	64,750	6,670
Hickories	9,060	3,570	5,490	33,840	31,210	2,630
Hard maple	980	580	400	2,500	2,500	--
Beech	130	50	80	470	470	--
Black walnut	220	50	170	1,140	1,140	--
Ash	2,160	950	1,210	6,910	6,730	180
Soft maple	1,340	500	840	4,800	4,460	340
Sweetgum	5,020	2,000	3,020	17,610	16,260	1,350
Blackgum	980	580	400	2,450	2,160	290
Cottonwood	830	--	830	5,590	5,590	--
Yellow-poplar	640	130	510	3,060	2,360	700
Basswood	50	--	50	340	--	340
Other	6,010	2,890	3,120	19,400	16,860	2,540
Total hardwoods	61,460	21,590	39,870	241,270	221,290	19,980
All species	61,730	21,680	40,050	242,300	222,160	20,140

\* International 1/4-inch rule.



Table 10.--*Volume of growing stock and sawtimber on commercial forest land by species and kind of material*  
*Western Unit, Kentucky, 1963--(Continued)*

LYON COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>
	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>
Softwoods:						
Shortleaf pine	80	--	80	510	--	510
Cypress	210	--	210	1,310	1,060	250
Redcedar	190	140	50	200	200	--
Total softwoods	480	140	340	2,020	1,260	760
Hardwoods:						
Select white oak	13,180	4,430	8,750	51,950	47,420	4,530
Select red oak	3,450	820	2,630	16,890	16,440	450
Other white oak	6,130	2,460	3,670	21,010	19,520	1,490
Other red oak	17,460	5,340	12,120	73,240	66,290	6,950
Hickories	11,350	4,710	6,640	40,690	37,540	3,150
Hard maple	1,290	770	520	3,200	3,200	--
Beech	230	90	140	950	950	--
Black walnut	160	40	120	750	750	--
Ash	1,920	920	1,000	6,120	5,940	180
Soft maple	1,240	550	690	3,960	3,690	270
Sweetgum	5,240	1,930	3,310	19,360	17,840	1,520
Blackgum	1,020	710	310	1,930	1,710	220
Cottonwood	2,180	10	2,170	13,880	13,880	--
Yellow-poplar	920	160	760	4,610	3,550	1,060
Basswood	30	--	30	190	--	190
Other	5,750	2,890	2,860	17,790	15,400	2,390
Total hardwoods	71,550	25,830	45,720	276,520	254,120	22,400
All species	72,030	25,970	46,060	278,540	255,380	23,160

McCRACKEN COUNTY

Softwoods:						
Shortleaf pine	100	--	100	610	--	610
Cypress	180	--	180	1,040	850	190
Redcedar	40	30	10	40	40	--
Total softwoods	320	30	290	1,690	890	800
Hardwoods:						
Select white oak	3,300	930	2,370	14,380	13,140	1,240
Select red oak	1,390	230	1,160	7,690	7,490	200
Other white oak	2,540	1,020	1,520	8,420	7,830	590
Other red oak	7,890	1,600	6,290	37,760	34,220	3,540
Hickories	3,950	1,320	2,630	16,490	15,200	1,290
Hard maple	570	220	350	2,360	2,360	--
Beech	60	10	50	380	380	--
Black walnut	60	--	60	320	320	--
Ash	1,730	780	950	5,280	5,120	160
Soft maple	2,110	530	1,580	9,290	8,620	670
Sweetgum	5,990	2,220	3,770	22,430	20,690	1,740
Blackgum	510	260	250	1,550	1,370	180
Cottonwood	2,010	10	2,000	12,950	12,950	--
Yellow-poplar	520	130	390	2,430	1,870	560
Basswood	50	--	50	290	--	290
Other	4,480	1,950	2,530	15,590	13,610	1,980
Total hardwoods	37,160	11,210	25,950	157,610	145,170	12,440
All species	37,480	11,240	26,240	159,300	146,060	13,240

\* International 1/4-inch rule.



Table 10.--*Volume of growing stock and sawtimber on commercial forest land by species and kind of material*  
*Western Unit, Kentucky, 1963--(Continued)*

MARSHALL COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	--	--	--	--	--	--
Cypress	160	--	160	940	760	180
Redcedar	100	70	30	150	150	--
Total softwoods	260	70	190	1,090	910	180
Hardwoods:						
Select white oak	7,560	2,420	5,140	30,140	27,380	2,760
Select red oak	2,610	520	2,090	13,660	13,230	430
Other white oak	3,490	1,440	2,050	11,410	10,550	860
Other red oak	11,660	3,440	8,220	49,260	44,360	4,900
Hickories	8,540	2,880	5,660	35,110	32,080	3,030
Hard maple	1,120	460	660	4,420	4,420	--
Beech	160	50	110	610	610	--
Black walnut	160	30	130	790	790	--
Ash	2,540	1,080	1,460	8,410	8,120	290
Soft maple	3,540	930	2,610	15,470	14,270	1,200
Sweetgum	6,190	2,080	4,110	24,270	22,240	2,030
Blackgum	600	410	190	1,190	1,030	160
Cottonwood	2,750	10	2,740	17,490	17,490	--
Yellow-poplar	690	90	600	3,730	2,850	880
Basswood	30	--	30	190	--	190
Other	6,650	2,910	3,740	22,580	19,550	3,030
Total hardwoods	58,290	18,750	39,540	238,730	218,970	19,760
All species	58,550	18,820	39,730	239,820	219,880	19,940

TRIGG COUNTY

Softwoods:						
Shortleaf pine	140	--	140	840	--	840
Cypress	430	--	430	2,590	2,100	490
Redcedar	400	270	130	570	570	--
Total softwoods	970	270	700	4,000	2,670	1,330
Hardwoods:						
Select white oak	24,630	8,540	16,090	96,320	87,960	8,360
Select red oak	5,760	1,240	4,520	28,920	28,160	760
Other white oak	10,950	4,520	6,430	37,340	34,680	2,660
Other red oak	34,890	10,330	24,560	149,960	135,750	14,210
Hickories	20,170	8,660	11,510	71,000	65,550	5,450
Hard maple	2,530	1,380	1,150	7,290	7,290	--
Beech	460	120	340	2,190	2,190	--
Black walnut	310	90	220	1,410	1,410	--
Ash	4,190	2,020	2,170	13,590	13,190	400
Soft maple	4,280	1,300	2,980	18,130	16,830	1,300
Sweetgum	11,700	4,190	7,510	44,280	40,820	3,460
Blackgum	2,200	1,370	830	5,140	4,550	590
Cottonwood	4,560	20	4,540	29,510	29,510	--
Yellow-poplar	1,900	260	1,640	9,890	7,620	2,270
Basswood	50	--	50	340	--	340
Other	12,140	5,620	6,520	40,630	35,210	5,420
Total hardwoods	140,720	49,660	91,060	555,940	510,720	45,220
All species	141,690	49,930	91,760	559,940	513,390	46,550

\* International 1/4-inch rule.



Table 11.--*Volume of growing stock on commercial-forest land by species and diameter class*  
*Western Unit, Kentucky, 1963*

(In thousand cubic feet by diameter in inches)

Species	Total	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0 and larger
<b>Softwoods:</b>											
Shortleaf pine	1,420	--	--	--	1,210	210	--	--	--	--	--
Cypress	2,410	--	--	--	--	820	530	--	--	--	1,060
Redcedar	1,230	490	340	230	170	--	--	--	--	--	--
Total softwoods	5,060	490	340	230	1,380	1,030	530	--	--	--	1,060
<b>Hardwoods:</b>											
Select white oak	85,510	8,070	7,980	12,280	15,200	16,720	10,400	6,530	1,590	2,790	3,950
Select red oak	26,280	780	1,780	2,880	3,840	3,940	3,010	2,550	1,950	1,240	4,310
Other white oak	47,440	4,240	5,090	9,990	8,160	8,440	3,250	4,670	800	1,740	1,060
Other red oak	145,920	5,920	16,410	17,450	20,290	29,970	20,140	12,920	10,200	4,970	7,650
Hickories	81,790	9,260	9,260	14,380	11,840	8,170	6,050	6,850	3,720	3,370	8,890
Hard maple	9,990	1,660	1,570	1,680	1,380	1,790	--	360	470	--	1,080
Beech	1,520	160	240	--	530	--	--	--	--	400	190
Black walnut	1,430	--	170	130	280	--	340	240	--	270	--
Ash	22,440	2,980	4,430	3,050	3,190	5,120	710	1,100	610	--	1,250
Soft maple	23,940	2,850	2,220	2,770	3,440	2,950	4,560	830	1,180	1,920	1,220
Sweetgum	68,190	2,840	7,330	13,390	13,320	8,870	8,990	4,060	2,470	2,540	4,380
Blackgum	8,450	1,480	2,540	910	620	510	770	600	440	--	580
Cottonwood	30,880	140	--	--	--	1,200	3,260	4,910	3,370	5,650	12,350
Yellow-poplar	7,690	300	200	790	910	530	2,870	--	200	320	1,570
Basswood	430	--	--	--	--	430	--	--	--	--	--
Other	74,470	13,260	10,530	7,510	7,780	9,260	5,560	5,270	5,120	1,150	9,030
Total hardwoods	636,370	53,940	69,750	87,210	90,780	97,900	69,910	50,890	32,120	26,360	57,510
All species	641,430	54,430	70,090	87,440	92,160	98,930	70,440	50,890	32,120	26,360	58,570



Table 12.--*Volume of sawtimber on commercial-forest land by species and diameter class*  
*Western Unit, Kentucky, 1963*

(In thousand board feet\* by diameter in inches)

Species	Total	9.0-10.9†	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0 and larger
<b>Softwoods:</b>									
Shortleaf pine	8,610	--	7,310	1,300	--	--	--	--	--
Cypress	14,190	--	--	5,620	2,670	--	--	--	5,900
Redcedar	1,850	1,330	520	--	--	--	--	--	--
Total softwoods	24,650	1,330	7,830	6,920	2,670	--	--	--	5,900
<b>Hardwoods:</b>									
Select white oak	341,260	--	81,810	99,490	63,680	41,060	9,840	18,380	27,000
Select red oak	134,950	--	21,930	23,460	19,270	17,330	12,780	9,290	30,890
Other white oak	161,120	--	43,370	47,660	19,630	26,690	5,240	11,350	7,180
Other red oak	642,300	--	110,410	174,540	117,280	82,790	66,770	34,970	55,540
Hickories	302,850	--	68,450	47,910	36,900	42,660	22,140	21,190	63,600
Hard maple	32,860	--	7,600	10,920	--	2,410	3,360	--	8,570
Beech	7,010	--	3,220	--	--	--	--	2,660	1,130
Black walnut	7,110	--	1,650	--	2,150	1,130	--	2,180	--
Ash	70,460	--	15,360	28,270	7,290	7,320	3,990	--	8,230
Soft maple	94,260	--	15,940	16,660	26,910	5,150	7,720	12,860	9,020
Sweetgum	263,770	--	74,630	53,090	50,600	23,010	16,010	16,360	30,070
Blackgum	21,460	--	3,540	2,910	4,050	3,950	2,830	--	4,180
Cottonwood	197,950	--	--	6,010	18,230	28,830	20,860	34,690	89,330
Yellow-poplar	38,980	--	5,360	3,460	16,640	--	1,260	2,370	9,890
Basswood	2,750	--	--	2,750	--	--	--	--	--
Other	267,110	--	42,040	52,810	34,290	30,020	33,160	5,080	69,710
Total hardwoods	2,586,200	--	495,310	569,940	416,920	312,350	205,960	171,380	414,340
All species	2,610,850	1,330	503,140	576,860	419,590	312,350	205,960	171,380	420,240

\* International 1/4-inch rule.

† Softwoods only.



Table 13.--*Net annual growth on commercial-forest land by species and kind of material*  
*Western Unit, Kentucky, 1963*

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf Pine	100	--	100	590	--	590
Cypress	160	--	160	1,060	720	340
Redcedar	110	90	20	110	110	--
Total softwoods	370	90	280	1,760	830	930
Hardwoods:						
Select white oak	3,870	2,160	1,710	19,620	15,610	4,010
Select red oak	1,090	440	650	7,150	6,770	380
Other white oak	2,180	1,390	790	11,690	8,970	2,720
Other red oak	7,280	3,530	3,750	40,340	31,940	8,400
Hickories	2,970	2,270	700	13,570	10,280	3,290
Hard maple	520	380	140	1,770	1,590	180
Beech	60	30	30	140	140	--
Black walnut	70	30	40	270	270	--
Ash	1,350	960	390	5,360	4,470	890
Soft maple	1,040	770	270	4,990	3,980	1,010
Sweetgum	3,240	1,750	1,490	21,370	18,010	3,360
Blackgum	520	440	80	1,270	1,050	220
Cottonwood	1,020	20	1,000	9,980	9,980	--
Yellow-poplar	380	130	250	2,570	2,070	500
Basswood	20	--	20	100	--	100
Other	3,830	3,100	730	10,980	8,040	2,940
Total hardwoods	29,440	17,400	12,040	151,170	123,170	28,000
All species	29,810	17,490	12,320	152,930	124,000	28,930

\* International 1/4-inch rule.

Table 14.--*Net annual growth on commercial-forest land by county and species group*  
*Western Unit, Kentucky, 1963*

County	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Ballard	2,080	20	2,060	11,680	120	11,560
Calloway	2,880	60	2,820	14,580	250	14,330
Carlisle	2,040	30	2,010	10,460	180	10,280
Fulton	1,370	20	1,350	7,180	120	7,060
Graves	2,550	50	2,500	11,810	250	11,560
Hickman	1,670	10	1,660	9,400	70	9,330
Livingston	2,850	20	2,830	14,210	100	14,110
Lyon	3,410	40	3,370	16,910	140	16,770
McCracken	1,650	20	1,630	9,160	130	9,030
Marshall	2,450	20	2,430	12,790	90	12,700
Trigg	6,860	80	6,780	34,750	310	34,440
Total	29,810	370	29,440	152,930	1,760	151,170

\* International 1/4-inch rule.



Table 15.--*Timber cut from commercial-forest land by species and kind of material*  
*Western Unit, Kentucky, 1962*

Species	Growing stock			Sawtimber
	Total	Poletimber trees	Sawtimber trees	Total
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>
Softwoods:				
Shortleaf pine	70	60	10	70
Cypress	120	10	110	600
Redcedar	180	120	60	280
Total softwoods	370	190	180	950
Hardwoods:				
Select white oak	800	120	680	4,200
Select red oak	2,190	260	1,930	12,410
Other white oak	800	130	670	4,290
Other red oak	1,230	260	970	6,120
Hickories	660	240	420	2,630
Hard maple	170	60	110	730
Beech	130	50	80	560
Black walnut	30	--	30	220
Ash	180	60	120	850
Soft maple	200	10	190	1,290
Sweetgum	380	10	370	2,490
Blackgum	50	--	50	370
Cottonwood	850	10	840	5,600
Yellow-poplar	380	10	370	2,500
Basswood	40	--	40	230
Other	600	70	530	3,500
Total hardwoods	8,690	1,290	7,400	47,990
All species	9,060	1,480	7,580	48,940

\* International 1/4-inch rule.

Table 16.--*Timber cut from commercial-forest land by ownership and species group*  
*Western Unit, Kentucky, 1962*

Ownership class	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Public	230	--	230	1,480	10	1,470
Forest industry	90	--	90	560	--	560
Farmer and miscellaneous private	8,740	370	8,370	46,900	940	45,960
All ownerships	9,060	370	8,690	48,940	950	47,990

\* International 1/4-inch rule.



Table 17.--*Net annual desirable cut on commercial-forest land by species and kind of material*  
*Western Unit, Kentucky, 1963*

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	--	--	--	--	--	--
Cypress	80	--	80	420	420	--
Redcedar	10	10	--	--	--	--
Total softwoods	90	10	80	420	420	--
Hardwoods:						
Select white oak	2,740	860	1,880	11,350	10,260	1,090
Select red oak	760	110	650	4,260	4,260	--
Other white oak	1,490	440	1,050	6,070	6,070	--
Other red oak	2,100	570	1,530	9,270	8,580	690
Hickories	1,820	870	950	5,870	5,160	710
Hard maple	300	110	190	1,290	1,290	--
Beech	50	--	50	290	290	--
Black walnut	50	10	40	310	310	--
Ash	560	270	290	1,690	1,690	--
Soft maple	580	130	450	2,840	2,840	--
Sweetgum	880	160	720	4,410	4,410	--
Blackgum	200	130	70	300	300	--
Cottonwood	680	--	680	4,480	4,480	--
Yellow-poplar	200	--	200	1,150	1,150	--
Basswood	--	--	--	--	--	--
Other	1,380	600	780	5,360	5,360	--
Total hardwoods	13,790	4,260	9,530	58,940	56,450	2,490
All species	13,880	4,270	9,610	59,360	56,870	2,490

\* International 1/4-inch rule.

Table 18.--*Net annual desirable cut on commercial-forest land by county and species group*  
*Western Unit, Kentucky, 1963*

County	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Ballard	1,070	--	1,070	5,080	30	5,050
Calloway	1,260	10	1,250	5,300	70	5,230
Carlisle	950	--	950	4,290	30	4,260
Fulton	620	10	610	2,860	30	2,830
Graves	1,050	10	1,040	4,100	70	4,030
Hickman	890	10	880	4,090	20	4,070
Livingston	1,330	--	1,330	5,510	20	5,490
Lyon	1,560	10	1,550	6,330	30	6,300
McCracken	810	10	800	3,620	30	3,590
Marshall	1,270	10	1,260	5,450	20	5,430
Trigg	3,070	20	3,050	12,730	70	12,660
Total	13,880	90	13,790	59,360	420	58,940

\* International 1/4-inch rule.



## THE AUTHORS



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